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Guide to the Integration of Climate Change into your EMS

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Agenda

- Introduction to ClimAdapt
- Perspective on climate change
- Climate change management needs
- ISO 14001 principles and elements
- A Guide to integration

An introduction to ClimAdapt
Nova Scotia's Climate Change Adaptation Initiative

a Nova Scotia based partnership between

- Nova Scotia Environmental Industries Association
- Nova Scotia Department of Environment and Labour
- Six private companies
- Halifax Regional Municipality
- Atlantic Canada Opportunities Agency
- C-CAIRN

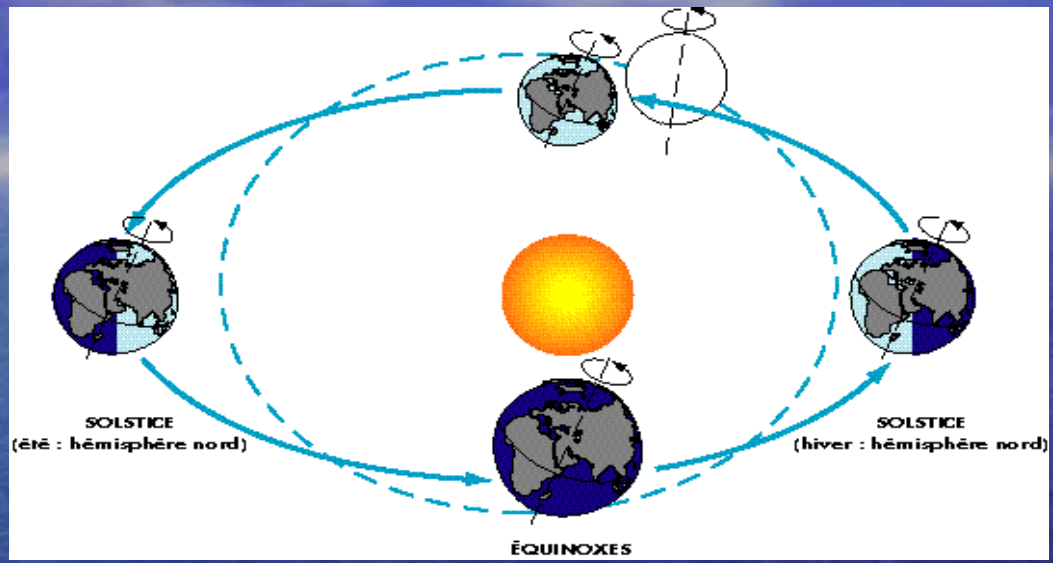
with the objective of:

"developing the skills to address climate change adaptation in Nova Scotia"

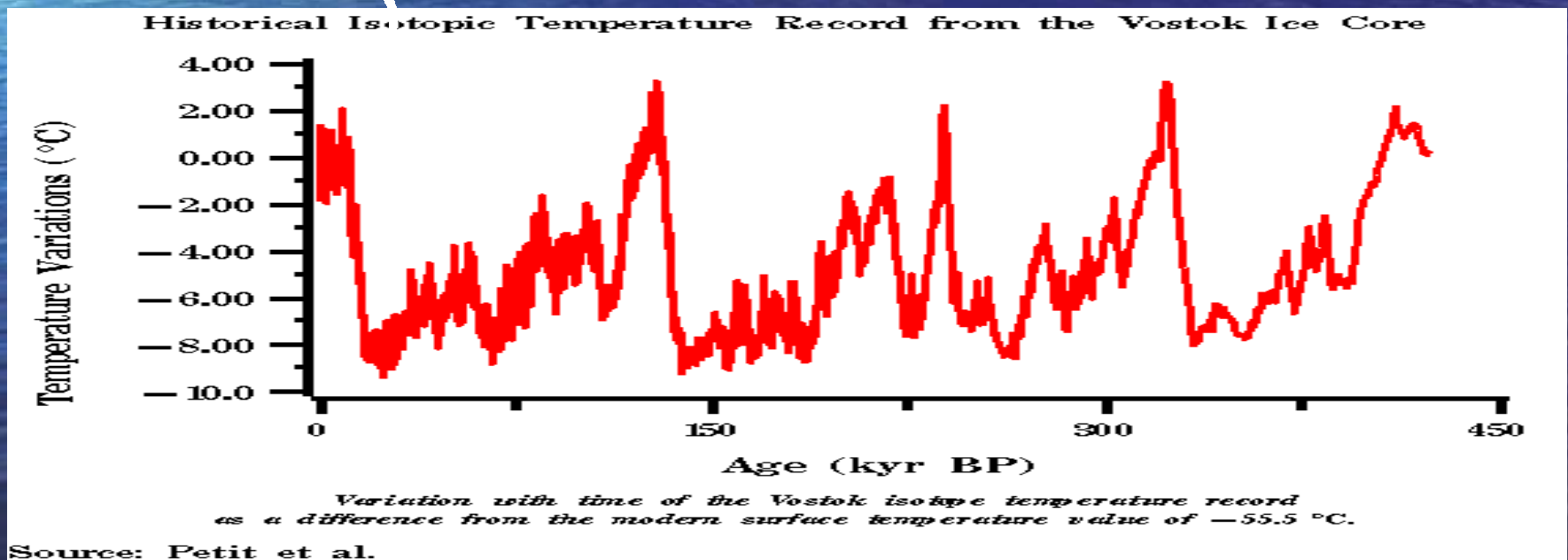
Perspective on climate change

Climate change is natural – but …!

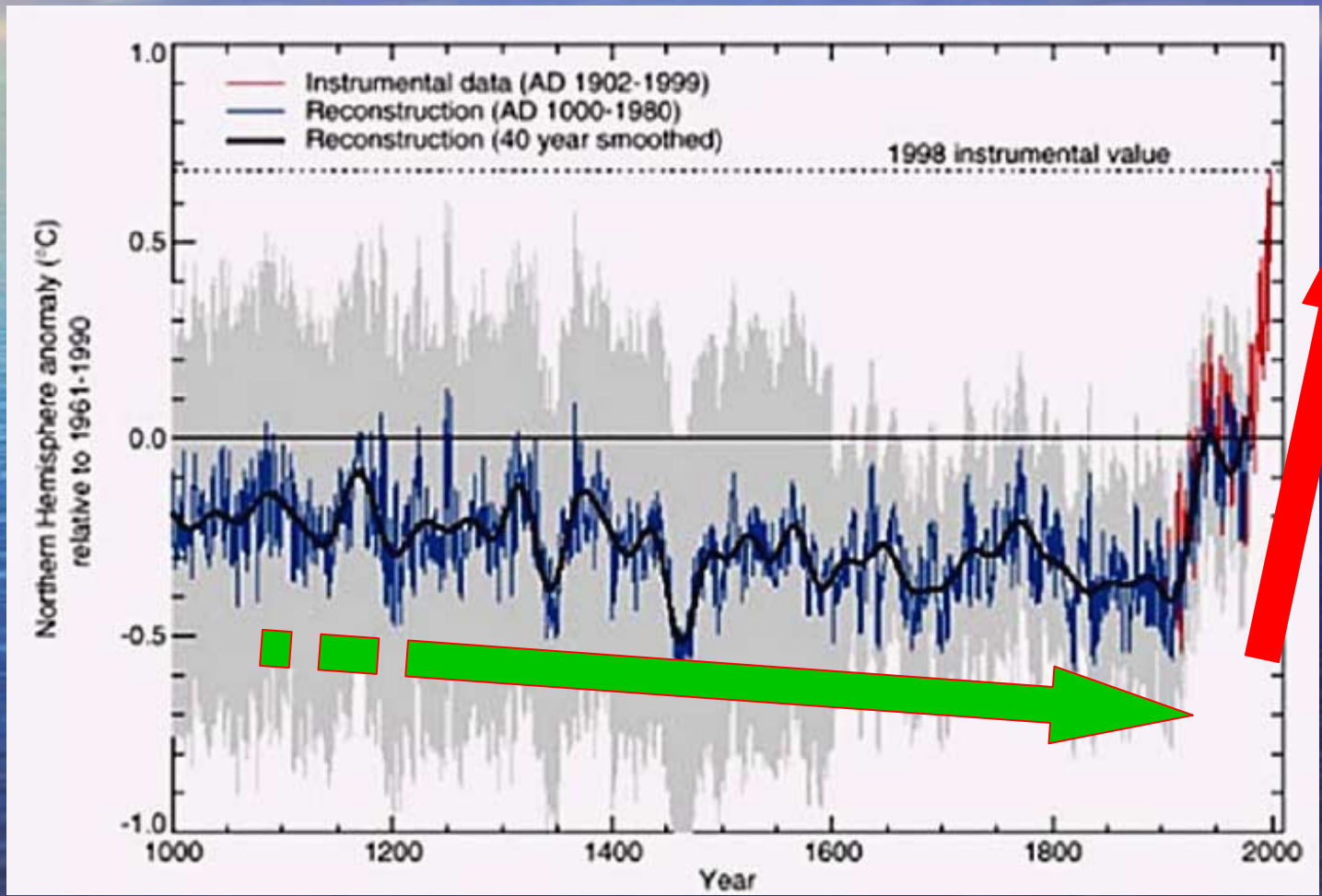
We are at the top of the cycle … Temperatures should be coming down, not up!



We are here



The current change is NOT natural



Some global projections for year 2100

- Average air temperature +1.4 to +5.8^{0}C
- Average sea level increase +0.09 to +0.88m
- Increased variability in climate
- Greater frequency and intensity of extreme climate phenomena

large tides and storms

floods

droughts, heat spells

forest fires

Saguenay *(1996),*
26 millions m³ of water
and 9 millions tons of debris

The Great Ice Storm *(1998),* **1,5 millions customers without electricity for up to 30 days**

Climate change - management needs

Two management issues associated with climate change

- **Control of Greenhouse Gas emissions**

  involving Kyoto agreement, process and control technology, monitoring, auditing, trading, etc.

2. **Adaptation**

   involving a wide range of managing challenges to both government and industry.

Mitigate or Adapt?

100 percent implementation of the Kyoto Protocol will extend the period predicted for CO_2 to double in our atmosphere by only about 6 years (from 2080 to 2086)

We must both mitigate and adapt

Important to reflect this in the EMS

Management needs

- GHG mitigation to meet regulatory and policy needs

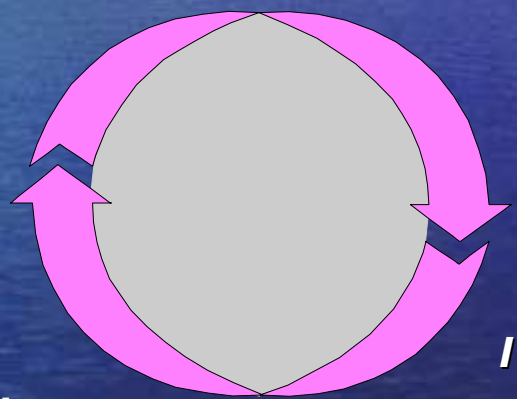
- Adaptation management including:
  - planning
  - climate change projection
  - projection of secondary changes
  - projection of changes to the project
  - interdisciplinary management of the effects of the changes identified, inc. monitoring and refinement

ISO 14001 Management Cycle

Environmental Policy

Planning

Scope Aspects/Impacts
Legal Requirements
Objectives & Targets
EMP - Procedures



Implementation & Operations

Responsibility
Training
Communication
Document Control
Operation Control
Emergency Response

Checking & Corrective Action

Monitoring & Measuring
Nonconformances
Records
Audit

Management Review

14001 principles/commitments

- Regulatory compliance
- Continual improvement
- Integration with other management issues
- Use of environmental protection & pollution prevention in balance with socio-economic needs

ClimAdapt Guide

Guide - *Policy*

Step 1 –Include the consideration of climate change mitigation and adaptation (as appropriate) into your EMS policy

This is most important single action required

Guide - *Planning*

Step 2 – Climate change prediction

Step 3 – Identify aspects and requirements associated with mitigation and adaptation

Step 4 – Establish objectives and targets related to the above

Step 5 - designate responsibility and time-frame for achieving these steps

Checklist – aspects

GHG mitigation

- Strategy
- reduction
- emission regs
- monitoring
- time-frames
- responsibilities

Adaptation

- mean-trend issues
- extreme-events issues
- effects on project
- EIA implications
- operational/cost implications

Some examples - *Steps 2 - 5*

- Define mitigation alternatives, requirements, targets & responsibilities
- Determine adaptation aspects based on prediction of climate changes (next slide)
- Integrate with other economic/management issues

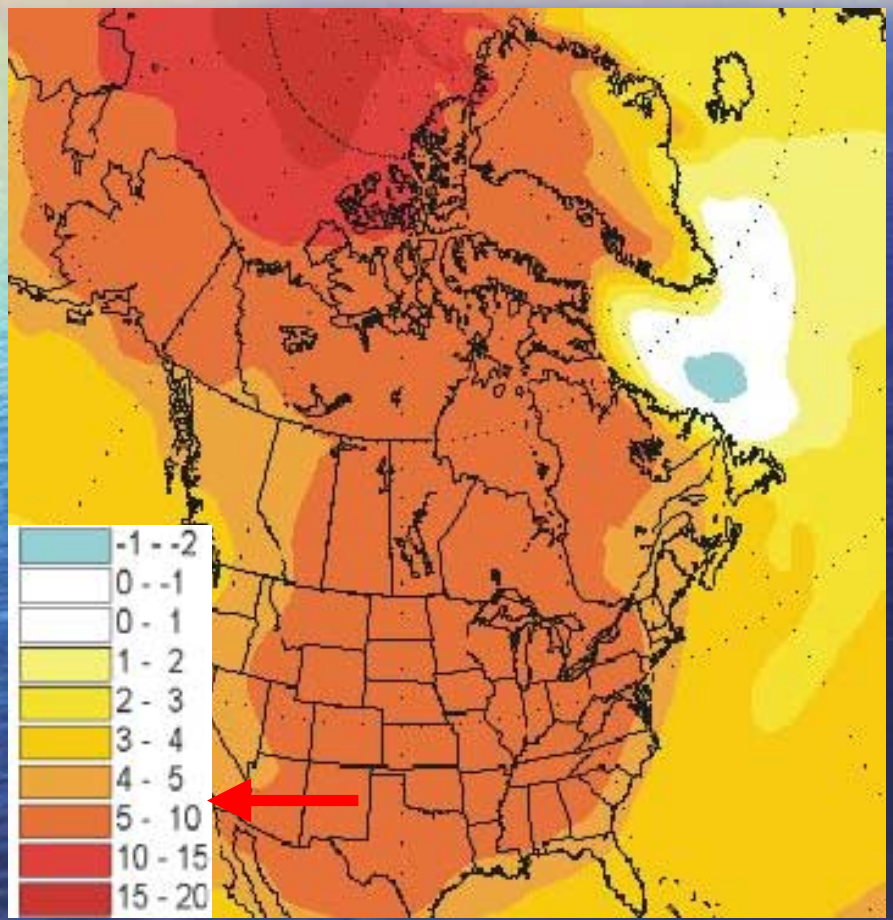
Sophistication of predictive methods can vary:

Guide – *4 prediction alternatives*

- Generally-available climate change regional projections e.g. those provided by the University of Victoria under the CCIS project on http://www.ccis.uvic.ca
- country- or region-specific studies available from governments and other agencies
- project-specific climate-change modeling
- risk-assessment-based approaches.

Voisey's Bay Mine EIA evaluation

2080-2100 with respect to 1975-1995



- Climate change not considered in EIA due to short life of 25 yr
- Predicted temp change of $-1.8^{0}C$
- Mean sea rise of up to 88 cm
- +11percent rain, -30cm snow
- -10 percent av wind speed
- No predictions made on extreme events
- VECs were: caribou, bear, waterfowl, fish, sea ice, social factors.

Guide - *Implementation and Operation*

Step 6 – Follow the incorporation process through each of the following headings:

- structure and responsibility
- training
- communication
- EMS documentation
- document control
- operational control
- emergency preparedness and response

Emergency preparedness and response within Step 6

- Climate change adaptation management involves issues associated with increased frequency/intensity of extreme climate phenomena and how to address them


TUESDAY'S CHILD

Guide - *Checking and Corrective Action*

Step 7 - Follow the integration process through each of the following headings:

- Monitoring and measurement
- Nonconformance and correction and preventive action
- Records
- EMS audit

Monitoring and measurement within step 7

- Monitoring and measurement of climate change are essential to enable updating of the adaptation management measures
- This provides for commitment to continual improvement

Guide - *Management Review*

Step 8 – Include climate change considerations in the review of the system by management.

- This should address any need for changes to the policy, objectives and other elements of the EMS to achieve continual improvement.

Conclusions

- An ISO 14001 compatible EMS is an ideal vehicle by which to manage both the mitigation and adaptation of climate change
- This Guide provides an approach to incorporating climate change into an EMS
- The specific needs depend on the project/system's characteristics and on predictions of climate change for its location

Thank you

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